

REMARKS

Claims 1-15 and 21-26 are pending in this application.

Claims 1-15 and 21-26 are rejected.

The present office action, dated 1 October 2004, indicates that claims 1–15 and 21-23 are rejected under 35 U.S.C. §103 as being unpatentable over Check U.S. Patent No. 5,463,491 in view of Silverstein 6,339,463 and that claims 25-26 are rejected under 35 U.S.C. §103 as being unpatentable over Check in view of Ishii U.S. Patent No. 5,148,297. Claims 6, 7, 15 and 24 are rejected under 35 U.S.C. §103 as being unpatentable over Check in view of Silverstein and others.

The rejections in the present office action are different than the rejections made in the last office action, dated April 21, 2004. In the last office action, the '103 rejections were made with Silverstein as the primary reference and Check as the secondary reference. Although the rejections are different, the issues are the same. And once again, the '103 rejections are respectfully traversed.

The issue is whether Check and Silverstein teach or suggest the use of an SPD light valve in combination with a fiber-optic face plate. Whether the rejection is based on Check in view of Silverstein or Silverstein in view of Check, the answer is the same: they do not teach or suggest such a combination.

Check discloses an SPD film suitable for use as a light modulating unit of an SPD light valve. Check does not disclose a fiber-optic face plate. This fact is acknowledged by the office action.

Silverstein discloses a fiber-optic faceplate in combination with a liquid crystal display (LCD). Silverstein does not explicitly disclose that a fiber-optic faceplate can be used in combination with an SPD light valve.

Nevertheless, the office action argues that it would be obvious “to adapt the fiber-optic faceplate as disclosed by Silverstein to the device of Check to enhance light collection efficiency and viewing angle performance.” Although the office action does not describe exactly how the faceplate would be adapted, the following is presumed: the office action argues it would be obvious to add only Silverstein’s fiber optic-faceplate to Check’s SPD light valve.

The office action engages in impermissible hindsight reconstruction. It uses the applicant’s structure as a template and selecting elements from references to fill the gaps. The office action finds no desirability in the prior art for combining a fiber-optic faceplate with an SPD light valve.

The office action cites a paragraph at col. 3, lines 22-37 of Silverstein. However, that paragraph discloses the deficiencies of monochrome reflective displays that operate on Bragg’s principle (see lines 30-34), and how a fiber optic faceplate, in combination with such displays, offers benefits. One benefit is greater brightness.

However, an SPD without faceplate already possesses this benefit. The suspended particle device without a faceplate is potentially quite bright. Moreover, neither Check nor Silverstein teach or suggest that an SPD light valve has the same deficiencies as a Bragg-diffracting LCD. Hence, the cited

documents provide no reason, incentive or motivation to add a fiber faceplate to an SPD light valve.

The applicant gives a reason for combining a fiber-optic faceplate with an SPD light valve: polarizers can be eliminated. Eliminating the polarizers is desirable, since the polarizers are difficult to build, typically have poor transmission and low dichromatic ratio, etc

Claim 21 recites a visual image display comprising a fiber-optic faceplate; and a suspended particle device (SPD) light valve in optical communication with the fiber optic faceplate. The light valve includes a plurality of particles in a suspension medium.

The combination of Check and Silverstein does not give reason, incentive or motivation for using a fiber-optic face plate in combination with an SPD light valve. Therefore, the '103 rejection of claim 21 and its dependent claims 1-10 and 22-24 should be withdrawn.

Claim 3 has been amended to recite resilient perimeter seals at both ends of a layer of SPD. The resilient seals allow relative motion between the SPD and the faceplate. For the additional reason that resilient seals are not taught or suggested by Silverstein or Check, amended claim 3 should be allowed over the documents made of record.

Claim 23 has been amended to recite that the display has no polarizer between the SPD valve and faceplate. The office action appears to assume that

“adapting” Silverstein’s device would involve adding only the faceplate without polarizers. However, the cited documents provide no support for this assumption. Silverstein teaches that the polarizers of an LCD-based display can be eliminated by using a certain type of liquid crystal light valve: a liquid crystal light valve that is Bragg—diffracting. Silverstein also teaches that certain deficiencies in such a light valve can be overcome by using a fiber-optic faceplate. The applicant takes a different approach toward eliminating polarizers: using an SPD device in combination with a fiber-optic faceplate. For this additional reason, amended claim 23 should be allowed over the combination of Check and Silverstein.

Claim 11 recites a visual image display including a fiber-optical faceplate; and a layer underneath the faceplate, wherein the layer includes a liquid light valve suspension and particles suspended in droplets of the liquid light valve suspension, wherein the particles are capable of absorbing or reflecting light. Claim 11 has been amended to recite that the display contains no polarizers. As discussed above, Silverstein and Check do not teach or suggest such a display. Therefore, claim 11 and its dependent claims 12-15 should be allowed over the combination of Check and Silverstein.

Claim 12 has been amended to recite resilient perimeter seals at both ends of the layer. As discussed above, this feature is not taught or suggested by the combination of Check and Silverstein.

Claim 25 recites apparatus including a substrate, a color filter on the substrate, a suspended particle device on the color filter; and a fiber-optic

faceplate on the suspended particle device. The office action acknowledges that Check does not disclose either the color filter or the fiber-optic faceplate.

The office action contends that Ishii suggests adding a color filter and fiber optic faceplate to Check's display. However, Ishii does not explicitly disclose this. Moreover, the office action makes no attempt to substantiate its contention. It does not even attempt to find reason, incentive or motivation in the prior art for adding Ishii's faceplate and color filter to Check's SPD-based display,

Here too, the office action engages in impermissible hindsight reconstruction. It uses the applicant's structure as a template and selecting elements from references to fill the gaps.

The office action states that the teachings of Check are "equally applicable" to liquid crystal devices as taught by Check. However, this statement does not make sense. If rejection were based on Ishii in view of Check, it might. Yet even if the rejection was based on Ishii in view of Check, the fact remains that neither document provides reason, motivation or incentive for combining a fiber-optic faceplate with an SPD light valve. Therefore, claim 25 and its dependent claim 26 should be allowed over the combination of Check and Ishii.

The statement about "equally applicable" appears to be based on an incorrect assumption. The office action assumes that a liquid crystal layer is considered to be a suspended particle device. However, this assumption is not supported by the documents made of record. Therefore, the statement is apparently based on the personal knowledge of the examiner. This personal

knowledge is hereby challenged. If the examiner maintains a rejection based on this assumption, he is respectfully requested, pursuant to MPEP §707 and 37 CFR §1.104(d)(2), to cite a document or affidavit supporting his personal knowledge about a liquid crystal layer being a suspended particle device.

Claim 26 recites means for sealing the suspended particle device to the faceplate, the means allowing motion of the faceplate relative to the suspended particle device. Check does not disclose a means for sealing a fiber-optic faceplate to an SPD light valve. Ishii shows a sealing compound (12) for sealing a fiber plate 16 to liquid crystal layers 13a, 13b.

The office action states “depending upon the viscosity, hence flexibility of the sealing compound, it will allow motion of the faceplate relative to the suspended particle device.” The statement is pure fabrication by the examiner. The statement is nowhere to be found in Ishii. Ishii is silent about the flexibility of the sealing compound as well as the relative motion between the fiber plate 16 and the liquid crystal layers 13a, 13b. For this additional reason, claim 26 should be allowed over the combination of Check and Ishii.

The Examiner is respectfully requested to withdraw the rejections and issue a notice of allowability. If any issues remain, the Examiner is encouraged to contact the undersigned.